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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/586,201	06/02/2000	W Keith Fisher	SOLU:103	6110

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EXAMINER
JUSKA, CHERYL ANN

ART UNIT	PAPER NUMBER
1771	10

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/586,201	Applicant(s) FISHER ET AL.	
	Examiner Cheryl Juska	Art Unit 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 October 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 8-101* is/are pending in the application.

4a) Of the above claim(s) *30-100* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,8-14 and 19-29* is/are rejected.

7)☒ Claim(s) *15-18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. Amendment A, submitted as Paper No. 9 on October 7, 2002, has been entered. Claims 6 and 7 have been cancelled, while claims 1, 4, 5, 8-12, 14, and 15 have been amended as requested. New claim 101 has been added. Thus, the pending claims are 1-5 and 8-101, with claims 30-100 being withdrawn as non-elected.

2. Amendment A is sufficient to overcome the 112, 2nd rejection of claims 14 and 15, as set forth in section 9 of the last Office Action. Additionally, said amendment, which limits the conductive staple fibers to being non-metallic, is sufficient to overcome the prior art rejections based upon the Rodini, Norris, and Graham references (sections 12. 13, and 15 of the last Office Action).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 101 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what constitutes "a significant corona current" or "an appropriate voltage." How much voltage is need to produce a corona current? How does this amount differ from the amount required to produce a "significant" corona current? These phrases are relative and thus, render the claim indefinite.

Claim Rejections - 35 USC § 102

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-5 and 8 stand rejected under 102(b) as being anticipated by US 4,756,941 issued to McCullough et al., as set forth in section 11 of the last Office Action.

7. Claims 1-5, 9, 12-14, and 19-29 stand rejected under 102(b) as being anticipated by US 4,420,534 issued to Matsui et al., as set forth in section 14 of the last Office Action.

Response to Arguments

8. Applicant's arguments filed with Amendment A have been fully considered but they are not persuasive.

9. Applicant traverses the above McCullough 102 rejection by noting that McCullough teaches a staple fiber yarn having 0.5-1.0% of conductive fibers rather than the presently claimed at least 35% conductive fibers (Amendment A, paragraph spanning pages 5-6). In response, it is noted that said teaching is merely one embodiment of the McCullough invention. McCullough explicitly teaches a staple fiber yarn which is knitted into a fabric and then carbonized to create a fabric of 100% conductive staple fiber yarns at col. 2, lines 59-64. Therefore, the above McCullough 102 rejection is maintained.

10. With respect to the Matsui anticipation rejection, Applicant argues that Matsui teaches mixing the bicomponent conductive filaments (or staple fibers) in an amount of only 0.1-10% by weight, rather than the presently claimed at least 35% (Amendment A, page 7, 2nd paragraph). In response, it is reiterated that Matsui teaches the 0.1-10% ratio is the "usual mix ratio" but that

other mix ratios, such as less than 0.1% or 10-100%, are also applicable (Matsui, col. 14, lines 46-53. Contrary to Applicant's assertion that said teaching lacks specificity and thus, cannot be relied upon for an anticipation rejection, said teaching is clear and explicit that the conductive fibers may be used alone (100%) or in any other amount with another fiber, with a common amount being 0.1-10%. Thus, the teaching of 0.1-10% does not teach away from the present invention, since the reference also explicitly teaches any other blend amount or the use of the fibers alone. Therefore, said rejection is hereby maintained.

Claim Rejections - 35 USC § 102/103

11. Claim 101 is rejected under 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. 103(a) as being unpatentable over the cited McCullough and Matsui references, individually.

New claim 101 limits the yarn of claim 1 to possessing a significant corona current upon application of an appropriate voltage to the yarn.

Claim 101 is rejected along with claim 1 in that the claim language is relative. Hence, even a small amount of corona current can be deemed 'significant,' even if this requires a very large amount of voltage applied. Thus, it is asserted that the limitations are inherent to a yarn having conductive fibers therein. Additionally, it is noted that the claims are drawn to a yarn, not a charged yarn. In other words, the yarn is not claimed positively as being in the charged state, but rather in a future state. Thus, said limitations are not necessarily given patentable weight at this time. Therefore, claim 101 is rejected as being anticipated by both the McCullough and Matsui references.

12. Claims 1-5, 10, and 101 are rejected under 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. 103(a) as being unpatentable over US 5,102,727 issued to Pittman et al.

Pittman discloses a fabric having high conductivity yarns therein. Said yarns comprise conductive filament yarns or spun fiber (i.e., staple fiber) yarns that are made of metal, carbon, or conductive polymer coated yarns (claim 10). Additionally, conductive staple fiber yarns may be plied with other less conductive staple fiber yarns (col. 3, lines 22-29). Pittman states, "One can readily see that the conductivity of a yarn can be readily varied by, for example, incorporating a greater or lesser number of conductive filaments relative to the number of non-conductive or low conductivity filaments." (col. 3, lines 25-29).

Thus, Pittman teaches conductive spun yarns made of 100% conductive fibers or a blend of conductive fibers and non-conductive fibers, wherein the ratio of fibers in said blend would be obvious to one skilled in the art. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 205 USPQ 215. In this case, one would recognize that varying the amount of conductive fibers in a yarn would directly affect the resulting conductivity and resistance of said yarn. Therefore, claims 1-5, 10, and 101 are rejected as being anticipated by or obvious over the cited Pittman reference.

13. Claims 8, 9, 11-14, and 19-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,102,727 issued to Pittman et al. in view of Rodini (US 5,026,603), Matsui (US 4,420,534), and Kinlen (US 6,228,492).

Although Pittman does not explicitly teach conductive fibers made of carbon loaded polymers, polymers loaded with antimony-doped tin oxide, inherently conductive polymers, or

bicomponent fibers, said claims would have been obvious over the cited art since said alternate forms of conductive fibers are well-known in the art. See Rodini's teaching of bicomponent fibers of carbon-loaded conductive core/non-conductive sheath (col. 1, lines 35-50), Matsui's teaching of antimony-doped tin oxide conductive bicomponent filaments (abstract and col. 2, lines 47-49), and Kinlen's teaching of inherently conductive polymeric fibers (abstract). It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. Therefore, claims 8, 9, 12-14, and 19-29 are rejected as being obvious over the cited art.

14. Claims 1, 2, 4, 5, 8-14, 19-29, and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 3,690,057 issued to Norris in view of Rodini (US 5,026,603), Matsui (US 4,420,534), and Kinlen (US 6,228,492).

Norris discloses an antistatic yarn useful in making carpet pile. Said yarn comprises a blend of metal coated polymeric staple fibers and wool or nylon staple fibers (abstract and col. 1, lines 43-66). The metallic conductive fibers comprise 1-50% of the spun yarn (col. 3, line 63-col. 4, line 1).

Thus, Norris teaches the presently claimed invention with the exception that the conductive yarns are non-metallic conductive yarns, quasi-conductive yarns, or a mixture thereof. However, said conductive and quasi-conductive yarns are well-known in the art. See Rodini's teaching of bicomponent fibers of carbon-loaded conductive core/non-conductive sheath (col. 1, lines 35-50), Matsui's teaching of antimony-doped tin oxide conductive bicomponent filaments (abstract and col. 2, lines 47-49), and Kinlen's teaching of inherently conductive polymeric fibers (abstract). Thus, it would have been obvious to one skilled in the art

to substitute any of the known non-metallic conductive fibers for the metallic conductive fibers of Norris. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. Therefore, claims 1, 2, 4, 5, 8-14, 19-29, and 101 are rejected as being obvious over the cited art.

Allowable Subject Matter

15. Claims 15-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not teach or fairly suggest a yarn comprising at least 35% of a non-metallic conductive bicomponent staple fiber comprised of a non-conductive polymeric core and a conductive polymeric sheath.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Cheryl Juska whose telephone number is 703-305-4472. The Examiner can normally be reached on Monday-Friday 10am-6pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Terrel Morris can be reached on 703-308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

cj
December 15, 2002

CHERYL A. JUSKA
PRIMARY EXAMINER